

Remarks

Claims 1-10, 12-13, and 15-18 are pending in the application. Claim 9 has been amended. Reconsideration and re-examination of the application is respectfully requested for the reasons set forth herein.

1. The Examiner has rejected claim 9 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Examiner stated that claim 9 recites that a single wire is formed from a plurality of wires twisted together. The Examiner further stated that this language seems to contradict itself.

Claim 9 has been amended to depend from claim 1 and to state that the drain wire is formed from a plurality of wires twisted together. The amended claim language corresponds with the language on page 5, lines 11-13 of the specification. In view of this amendment, removal of the rejection of claim 9 under 35 U.S.C. 112, second paragraph, is respectfully requested.

2. The Examiner has rejected claims 16-18 under 35 U.S.C. 102(e) as being anticipated by Beaman et al. (US Patent No. 6,380,485).

In regard to claim 16, the Examiner stated that Beaman et al. discloses an electrical cable terminal part comprising an electrical cable 810 having a signal drain wire 811 and differential transmission signal wires 814, 815 with a differential impedance. The electrical cable 810 has a stripped end 812, 813 that exposes an outer surface of the wires. A tube 816 is positioned over a

portion of the electrical cable 810 and a portion of the outer surface of the wires 811, 814, 815 that maintains the differential impedance of the wires 811, 814, 815 having an exposed outer surface. The tube 816 is positioned such that front end portions of the differential transmission signal wires 814, 815 are receivable on a second side of a circuit board. The Examiner, therefore, concluded that Beaman et al. teaches all of the elements of claim 16.

Beaman et al. does not teach all of the elements of claim 16. Claim 16 states that the electrical cable terminal part comprises a tube positioned over a portion of the electrical cable and a portion of the outer surface of the wires that maintains the differential impedance of the wires having an exposed outer surface, the tube positioned such that front end portions of the differential transmission signal wires are receivable on a first side of a circuit board and a front end portion of the drain wire is receivable on a second side of the circuit board. Beaman et al. teaches multiple twinax wires 810 comprised of two parallel copper signal wires 812, 813 that are covered with insulating dielectric material 814, 815 and are surrounded by a thin metallized shield 816. A drain wire 811 is isolated between the two signal wires 812, 813. An exposed surface of the two signal wires 812, 813 and the drain wire 811 are soldered to terminal pads 806 on a printed circuit card 804. As shown in Figure 8, the two signal wires 812, 813 and the drain wire 811 are soldered to the same side of the printed circuit card 804. The drain wire 811 is arranged such that it is positioned directly next to only one of the two signal wires 812 when it is soldered to the printed circuit card 804. As such, the geometry of the two signal wires 812, 813 in relation to the drain wire 811 prior to termination and at termination is not maintained, resulting in impedance variations. Unlike the teachings of Beaman et al., the claimed invention requires front end portions of the differential transmission signal wires receivable on a first side of a circuit board and a front end portion of the drain wire receivable on a second side of the

circuit board. This arrangement, in combination with the positioning of the tube as claimed, maintains the differential impedance of the wires having an exposed outer surface. Beaman et al., therefore, does not teach all of the elements of claim 16. Removal of the rejection of claim 16 under 35 U.S.C. 102(e) is respectfully requested.

Claims 17 and 18 depend from independent claim 16. As previously discussed, Beaman et al. does not teach all of the elements of claim 16. Because Beaman et al. does not teach all of the elements of claim 16, Beaman et al. does not teach all of the elements of claims 17 and 18. Removal of the rejection of claims 17 and 18 under 35 U.S.C. 102(e) is respectfully requested.

2. The Examiner has rejected claims 1-10, 12-13 and 15 under 35 U.S.C. 103(a) as being unpatentable over Beaman et al. (US Patent No. 6,380,485 B1) in view of Selmeski (US Patent No. 5,371,322).

In regard to claim 1, the Examiner stated that Beaman et al. discloses all the elements of claim 1 as previously discussed with regard to claim 16. Beaman et al., however, does not disclose the tubing being a heat-shrink tube covering. The Examiner further stated that Selmeski teaches a heat-shrink tubing for securing wires together. The Examiner, therefore, concluded that it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the tubing of Beaman et al. with a heat-shrink tube as taught by Selmeski to secure the wires together more tightly.

The combination of Beaman et al. in view of Selemeski does not teach or suggest all of the elements of claim 1. Claim 1 states that the electrical cable comprises a heat-shrink tube covering a portion of the shielding covering and exposed area, except for a front end portion of the differential transmission signal wires and the drain wire, so that the equal distances between

the differential transmission signal wires and the drain wire inside the shielding covering are maintained in the exposed area by the heat-shrink tube and the differential transmission signal wires and the drain wire are positioned for receipt on a circuit board such that the front end portions of the differential transmission signal wires are receivable on a first side of the circuit board and the front end portion of the drain wire is receivable on a second side of the circuit board. As previously discussed, Beaman et al. teaches two signal wires 812, 813 and a drain wire 811 soldered to the same side of a printed circuit card 804. The drain wire 811 is arranged such that it is positioned directly next to only one of the two signal wires 812 when it is soldered to the printed circuit card 804. Selmeski teaches coupling ends of two severed wires together with a heat shrink tube. The heat shrink tube is not provided such that equal distances between the exposed wires are maintained. As such, the geometry of the two signal wires in relation to the drain wire in Beaman et al. and Selmeski prior to termination and at termination is not maintained, resulting in impedance variations. Unlike the teachings of Beaman et al. and Selmeski, the claimed invention requires front end portions of the differential transmission signal wires receivable on a first side of a circuit board and a front end portion of the drain wire receivable on a second side of the circuit board. This arrangement, in combination with the positioning of the heat-shrink tube that maintains equal distances between the differential transmission signal wires and the drain wire inside the shielding covering in the exposed area, maintains the differential impedance of the wires prior to and at termination. Because the combination of Beaman et al. in view of Selmeski neither teaches nor suggests all of the elements of claim 1, the Examiner has failed to set forth a prima facie case of obviousness. Removal of the rejection of claim 1 under 35 U.S.C. 103(a) is respectfully requested.

Claims 2-5 and 7-10, 12-13 depend from independent claim 1. As previously discussed, the combination of Beaman et al. in view of Selmeski neither teaches nor suggests all of the elements of claim 1. Because the combination of Beaman et al. in view of Selmeski neither teaches nor suggests all of the elements of claim 1, the combination of Beaman et al. in view of Selmeski neither teaches nor suggests all of the elements of claims 2-5 and 7-10, 12-13. Removal of the rejection of claims 2-5 and 7-10, 12-13 under 35 U.S.C. 103(a) is respectfully requested.

In regard to claims 6 and 15, the Examiner stated that the method is inherent to the device and is rejected on the same grounds as the device.

The combination of Beaman et al. in view of Selemeski does not teach or suggest all of the elements of claim 6. Claim 6 states that the method for terminating the electrical cable comprises covering an area around the two differential transmission signal wires and the drain wire that are exposed by stripping with a heat-shrink tube to maintain the drain wire at an equal distance from the two differential transmission signal wires to maintain impedance of the stripped wires and attaching the front end portions of the differential transmission signal wires on a first side of a circuit board and the front end portion of the drain wire on a second side of the circuit board. As previously discussed, Beaman et al. teaches soldering two signal wires 812, 813 and a drain wire 811 to the same side of a printed circuit card 804. The drain wire 811 is arranged such that it is positioned directly next to only one of the two signal wires 812 when it is soldered to the printed circuit card 804. Selemeski teaches coupling ends of two severed wires together with a heat shrink tube. The heat shrink tube is not provided such that equal distances between the exposed wires are maintained. As such, the geometry of the two signal wires in relation to the drain wire in Beaman et al. and Selmeski prior to termination and at termination is

not maintained, resulting in impedance variations. Unlike the teachings of Beaman et al. and Selmeski, the claimed invention requires attaching the front end portions of the differential transmission signal wires on a first side of a circuit board and the front end portion of the drain wire on a second side of the circuit board. This arrangement, in combination with covering an area around the two differential transmission signal wires and the drain wire that are exposed by stripping with a heat-shrink tube to maintain the drain wire at an equal distance from the two differential transmission signal wires to maintain impedance of the stripped wires, maintains the differential impedance of the wires prior to and at termination. Because the combination of Beaman et al. in view of Selmeski neither teaches nor suggests all of the elements of claim 6, the Examiner has failed to set forth a prima facie case of obviousness. Removal of the rejection of claim 6 under 35 U.S.C. 103(a) is respectfully requested.

Claim 15 depends from independent claim 6. As previously discussed, the combination of Beaman et al. in view of Selmeski neither teaches nor suggests all of the elements of claim 6. Because the combination of Beaman et al. in view of Selmeski neither teaches nor suggests all of the elements of claim 6, the combination of Beaman et al. in view of Selmeski neither teaches nor suggests all of the elements of claim 15. Removal of the rejection of claims 15 under 35 U.S.C. 103(a) is respectfully requested.

In view of the arguments and amendments presented herein, the application is considered to be in condition for allowance. Reconsideration and passage to issue is respectfully requested.

Please charge any additional fees associated with this application to Deposit Order Account No. 501581.

Respectfully submitted,
Masayuki Aizawa, Applicant

A handwritten signature in dark ink, appearing to read "J. M. Slonaker", is written over a horizontal line.

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